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ABSTRACT

Literature review components of the National Evaluation of School Nutrition Programs (a 30-month evaluation of the National School Lunch, School Breakfast, and Special Milk Programs) are summarized in this document. Chapters of the literature review describe the operations of school nutrition programs; examine the various methods for assessing the nutritional status of school-age children; summarize data on the nutritional status of school-age students from previous studies; discuss the results from previous studies of the effects of nutrition programs on students, families, schools, and school districts; and examine issues related to the targeting of program benefits toward recipients. The final chapter of the review outlines the kinds of additional research necessary for a more complete understanding of program operation and impact. (RH)

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The National Evaluation of School Nutrition Programs

Review of Research–Executive Summary

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NATIONAL EVALUATION OF SCHOOL NUTRITION PROGRAMS

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THE NATIONAL EVALUATION OF SCHOOL NUTRITION PROGRAMS

REVIEW OF RESEARCH - EXECUTIVE SUMMARY

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From Review of Research Volumes 1 and 2, April 1981
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In October of 1979 the Food and Nutrition Service (FNS) of the U.S. Department of Agriculture began a 30-month evaluation of the National School Lunch, School Breakfast, and Special Milk Programs. These programs were authorized by the National School Lunch Act of 1946 (Public Law 79-396) and the Child Nutrition Act of 1966 (Public Law 89-642). The evaluation is formally called the National Evaluation of the School Nutrition Programs (NESNP). The objectives of the evaluation are: to assess the current nutritional status of school children and the national need for the school nutrition programs; to determine whether the current levels and targeting of program benefits are appropriate for participants' needs; to assess the impact of the school nutrition programs on children, their families, schools and school districts; and to develop forecasting models that can be used to predict participation rates in the school nutrition programs. The evaluation is expected to be completed with the issuance of the final report in the Spring of 1982. The first product of the evaluation to be disseminated is a review of published and unpublished research and other data relevant to the operation and effectiveness of the school nutrition programs. Below is an executive summary of this first product, which is entitled the Review of Research.

The review and analysis of research was initiated to provide guidance for designing the subsequent field surveys of participating students, their families, and food program administrators. The review describes the operations of the school nutrition programs, examines the various methods for assessing the nutritional status of school-age children, summarizes data on the nutritional status of school-age students from previous studies, discusses the results of previous studies of the effects of the nutrition programs on students, families, schools and school districts, and examines issues related to the targeting of program benefits to recipients. The final chapter of the report outlines the kinds of additional research necessary for a more complete understanding of program operation and impact.

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*Based upon the National Evaluation of School Nutrition Programs: Review of Research Volumes 1 and 2, System Development Corporation 1981.

Computerized bibliographic searches were used to identify material for review from data bases such as the Educational Resources Information Center (ERIC), the National Technical Information Service (NTIS), the National Agricultural Library's cataloguing and indexing service (AGRICOLA), and others. The search for these data covered the period January 1960 to June 1980. Unpublished documents, USDA reports on studies in progress, and studies identified through citations in articles obtained as a result of the computerized search are also included in the review. With few noted exceptions, studies cited in the review met the following criteria: the research was based on original data*; the research was directly related to the program or provided useful information for evaluating the effects of the programs; and the research contained a description of the methods employed (research design, sampling, measurement and analytic procedures) to achieve its objectives. The following summarizes the content and findings of the major chapters of the review.

Operation of the School Based Nutrition Programs

The Food and Nutrition Service (FNS) of the U.S. Department of Agriculture is the principal administering agency for the National School Lunch, School Breakfast and Special Milk Programs. At the Federal level, FNS is generally responsible for implementing program legislation; establishing regulations, policies and guidelines; monitoring program performance; and providing program and administrative funds to States. The major functions of the Food and Nutrition Service Regional Offices are to monitor and provide technical assistance to the State agencies, and where State agencies cannot administer the programs in private schools because of State laws, to directly administer the programs in private schools. In turn, the State agency, usually the Department of Education, administers the programs within the States by providing technical assistance to local School Food Authorities (SFAs) at the school district level, by monitoring SFA performance, and by establishing

*That is, original articles were reviewed as opposed to someone else's summary of original work.

fiscal record-keeping systems. At the local level, SFAs administer the programs in the schools they supervise, in accordance with all of the appropriate regulations such as those governing the menu pattern of meals and guidelines such as those governing the income criteria for participation. Finally, individual schools are responsbile for preparing nutritious meals and making them available to all children.

The school nutrition programs are supported primarily by a performance funding mechanism. The allocation of resources to the States by the Federal Government, and subsequently to the SFAs by the States, is based on reimbursement for each meal or half pint of milk served.

Methods for Assessing the Nutritional Status of School-Age Children

The three broad types of measures for assessing the nutritional status of children are dietary, biochemical, and anthropometric measures. Dietary methods provide information about the kinds and quantities of foods consumed by individuals and groups of subjects. Biochemical analyses of blood, urine, hair and saliva can provide evidence of specific nutrient levels in the body. Anthropometric measures are used to assess the sufficiency of calorie and protein intake as reflected by the growth and development of the body. The specific nutritional assessment measures recommended by the literature review to achieve the objectives of the National Evaluation of School Nutrition Programs were the 24-hour dietary recall and anthropometric measures of height, weight, middle upper arm circumference and triceps fatfold.

Nutritional Problems of School-Age Children

Nutrients that are most often found to be below the Recommended Dietary Allowances (RDA) in the diets of school-age children include calcium, iron, vitamin A and vitamin C. More limited data also suggest that some children fall short of dietary standards for vitamin B_6, magnesium, folic acid, and zinc. Few studies have thus far measured the levels of fat, cholesterol, sugar and salt in children's diets. However, there are some preliminary

indications that children consume foods that are high in these dietary constitutents. Other evidence suggests that overconsumption of such food by children contributes to obesity.

Nutrition Status of Participants

Lunches consumed by USDA School Lunch Program participants contain higher percentages of Recommended Dietary Allowance (RDA) for vitamin A, calcium, riboflavin and phosphorus than lunches consumed by nonparticipants. When factors that are thought to influence dietary intake such as sex, age, height and weight are taken into account, School Lunch participants continue to have increased intakes of calcium, riboflavin and phosphorus compared to nonparticipants. Some evidence also suggests that the dietary intakes of children from low-income families or children who are judged to be nutritionally needy may be substantially improved by participation in the School Lunch Program. This is especially true for those children who receive substantial portions of their total daily intake from the program. However, the precise relationship between enhanced dietary intake and students' health has not yet been fully determined.

Studies that have attempted to examine the effects of school meals on student biochemical (i.e., hemoglobin or hematocrit), and anthropometric (i.e., height and weight) indicators of nutritional status have encountered technical problems that make it difficult to draw definitive conclusions from study results. Therefore, when differences in these nutritional indicators were observed between participants and nonparticipants in the school nutrition programs, they could not be directly attributed to the influence of school meals.

School Performance, Behavior and Nutritional Knowledge

Two general approaches have been used to investigate the effect of the school nutrition programs on the non-nutritional aspects of student behavior. One approach assesses the effects of hunger on short-term behaviors such as

nervousness, hyperactivity, attention, etc. The other approach attempts to relate participation in school feeding programs to long-term education benefits such as improved school achievement, cognitive performance and attendance. Studies of the short-term effects yield conflicting results. Studies that have investigated the long-term effects of the school feeding programs have not conclusively demonstrated the existence of significant relationships between participation and the effects in question. It has been suggested that exposing children to nutritious meals through participation in school nutrition programs will improve their attitudes toward nutrition and increase their nutrition knowledge. However, there are no formal studies to document whether or not exposure to nutritious foods has an effect on students' awareness and knowledge of nutrition.

Correspondence Between Economic and Nutritional Need

Children are eligible to receive meals at free and reduced prices according to USDA family size and income criteria. These criteria provide the principal means of ensuring that needy students have access to the school nutrition programs. Studies to determine whether or not such criteria identify children at nutritional risk reveal that family income and size do not invariably identify needy students. These studies suggest that many students from relatively affluent families may be nutritionally needy.

Multiple Participation in Federal Food Assistance Programs

It has been suggested that participation in several Federal food assistance programs may result in unintended and excessive benefits for at least some recipients. In assessing the extent to which families with children participating in the school nutrition programs receive food assistance benefits from other programs, most of the studies reviewed indicated that multiple participation was very common. These limited reports of multiple program participation, however, do not address well the more difficult questions of whether multiple program benefits complement or duplicate one another or whether multiple program participation ultimately improves the nutritional well-being of participants.

Nutrient Content of School Lunch

The guidelines for school lunch specify the quantities of food in four basic groups that are expected to provide participants with one-third of the Recommended Dietary Allowances (RDA) for all nutrients (except energy). Studies assessing the nutrient content of the school lunch, using one-third RDA as a criterion for adequacy, have found that iron, thiamin, and energy were the nutrients most often deficient in lunches as served and as consumed. Vitamin A and vitamin C were also below one-third RDA in lunches as served and as consumed in some schools. Vitamin B_6, zinc, and magnesium have also been found to fall below one-third of the RDA in lunches as served, but no studies report levels for these nutrients in lunches as consumed. It is likely that levels of these nutrients in lunches as consumed by students would be even lower due to food waste. For nutrients that meet one-third of the RDA in lunches as served, there is usually a sufficient margin to provide adequate intake, on the average, of these nutrients even when 15 to 25 percent of the food is not consumed.

In sum, the Review of Research briefly describes and analyzes the studies of the school nutrition programs that have been conducted over the last 20 years. The accuracy and generalizability of the findings of the studies is often limited by small sample sizes and other methodological shortcomings discussed in this review. Reports containing more definitive information on the impact of the nutrition programs on participating students and their families will be based on new data collected as part of the National Evaluation of School Nutrition Programs. These reports are currently being prepared and will be available for distribution beginning in the Summer of 1982.